

Claims

- [c1] A hose comprising:
 - an inner tube;
 - a non-reinforcing, abrasion-resistant layer overlying the inner tube and comprising a loosely-woven net of monofilament strands; and
 - a cover layer overlying the inner tube and encapsulating the abrasion-resistant layer.
- [c2] The hose of claim 1, wherein the monofilament strand diameter is in the range of 0.20 to 0.80 inches.
- [c3] The hose of claim 2, and further comprising a reinforcing layer interposed between the inner tube and the abrasion-resistant layer.
- [c4] The hose of claim 3, wherein the inner tube is a semi-rigid thermoplastic material.
- [c5] The hose of claim 4, wherein the semi-rigid thermoplastic material is polyethylene. .
- [c6] The hose of claim 4, wherein the semi-rigid thermoplastic material is nylon.

- [c7] The hose of claim 3, wherein the inner tube is an elastomeric material.
- [c8] The hose of claim 3, wherein the diameter of the monofilament strands is greater than the spacing between the monofilament strands.
- [c9] The hose of claim 3, wherein the spacing between the monofilament strands ranges from 50–200% of the diameter of the monofilament strands.
- [c10] The hose of claim 2, wherein the inner tube is a semi-rigid thermoplastic material.
- [c11] The hose of claim 10, wherein the semi-rigid thermoplastic material is polyethylene. .
- [c12] The hose of claim 10, wherein the semi-rigid thermoplastic material is nylon.
- [c13] The hose of claim 2, wherein the inner tube is an elastomeric material.
- [c14] The hose of claim 2, wherein the diameter of the monofilament strands is greater than the spacing between the monofilament strands.
- [c15] The hose of claim 2, wherein the spacing between the monofilament strands ranges from 50–200% of the di-

ameter of the monofilament strands.

- [c16] The hose of claim 2, and further comprising a tie layer between the inner tube and the abrasion-resistant layer to bond the inner tube to the abrasion-resistant layer.
- [c17] The hose of claim 16, wherein the tie layer is adhesive-grade nylon.
- [c18] The hose of claim 17, wherein the monofilament strands are nylon.
- [c19] The hose of claim 16, wherein the tie layer is adhesive-grade urethane.
- [c20] The hose of claim 19, wherein the monofilament strands are polyurethane.
- [c21] The hose of claim 3, and further comprising a tie layer between the reinforcing layer and the abrasion-resistant layer to bond the reinforcing layer to the abrasion-resistant layer.
- [c22] The hose of claim 21, wherein the tie layer is adhesive-grade nylon.
- [c23] The hose of claim 22, wherein the monofilament strands are nylon.
- [c24] The hose of claim 21, wherein the tie layer is adhesive-

grade urethane.

- [c25] The hose of claim 24, wherein the monofilament strands are polyurethane.
- [c26] The hose of claim 2, wherein the cover layer is an elastomeric material.
- [c27] The hose of claim 26, wherein the cover layer is selected from the group consisting of polyurethane, a thermoplastic rubber, rubber, and silicone.
- [c28] The hose of claim 1, wherein the spacing between the monofilament strands ranges from 50–200% of the diameter of the monofilament strands.
- [c29] The hose of claim 28, and further comprising a reinforcing layer interposed between the inner tube and the abrasion-resistant layer.
- [c30] The hose of claim 29, wherein the inner tube is a semi-rigid thermoplastic material.
- [c31] The hose of claim 30, wherein the semi-rigid thermoplastic material is polyethylene. .
- [c32] The hose of claim 30, wherein the semi-rigid thermoplastic material is nylon.
- [c33] The hose of claim 29, wherein the inner tube is an elas-

tomeric material.

- [c34] The hose of claim 29, wherein the diameter of the monofilament strands is greater than the spacing between the monofilament strands.
- [c35] The hose of claim 28, wherein the inner tube is a semi-rigid thermoplastic material.
- [c36] The hose of claim 35, wherein the semi-rigid thermo-plastic material is polyethylene. .
- [c37] The hose of claim 35, wherein the semi-rigid thermo-plastic material is nylon.
- [c38] The hose of claim 28, wherein the inner tube is an elastomeric material.
- [c39] The hose of claim 28, wherein the diameter of the monofilament strands is greater than the spacing between the monofilament strands.
- [c40] The hose of claim 28, and further comprising a tie layer between the inner tube and the abrasion-resistant layer to bond the inner tube to the abrasion-resistant layer.
- [c41] The hose of claim 40, wherein the tie layer is adhesive-grade nylon.
- [c42] The hose of claim 41, wherein the monofilament strands

are nylon.

- [c43] The hose of claim 40, wherein the tie layer is adhesive-grade urethane.
- [c44] The hose of claim 43, wherein the monofilament strands are polyurethane.
- [c45] The hose of claim 29, and further comprising a tie layer between the reinforcing layer and the abrasion-resistant layer to bond the reinforcing layer to the abrasion-resistant layer.
- [c46] The hose of claim 45, wherein the tie layer is adhesive-grade nylon.
- [c47] The hose of claim 46, wherein the monofilament strands are nylon.
- [c48] The hose of claim 45, wherein the tie layer is adhesive-grade urethane.
- [c49] The hose of claim 48, wherein the monofilament strands are polyurethane.
- [c50] The hose of claim 28, wherein the cover layer is an elastomeric material.
- [c51] The hose of claim 50, wherein the cover layer is selected from the group consisting of polyurethane, a thermo-

plastic rubber, rubber, and silicone.

- [c52] A method of making an abrasion-resistant hose comprising the steps of:
 - extruding an inner tube;
 - applying to the outer surface of the inner tube a non-reinforcing, abrasion-resistant, loosely woven net of monofilament strands; and
 - at least partially encapsulating the woven net of monofilament strands with a cover layer.
- [c53] The method of claim 52, and further comprising the step of interposing a reinforcing layer between the inner tube and the abrasion-resistant layer.
- [c54] The method of claim 53, and further comprising the step of interposing a tie layer between the reinforcing layer and the abrasion-resistant layer to bond the reinforcing layer to the abrasion-resistant layer.
- [c55] The method of claim 54, wherein the tie layer is adhesive-grade nylon.
- [c56] The method of claim 55, wherein the monofilament strands are nylon.
- [c57] The method of claim 54, wherein the tie layer is adhesive-grade urethane.

- [c58] The method of claim 57, wherein the monofilament strands are polyurethane.
- [c59] The method of claim 52, and further comprising the step of interposing a tie layer between the inner tube and the abrasion-resistant layer to bond the inner tube to the abrasion-resistant layer.
- [c60] The method of claim 59, wherein the tie layer is adhesive-grade nylon.
- [c61] The method of claim 60, wherein the monofilament strands are nylon.
- [c62] The method of claim 59, wherein the tie layer is adhesive-grade urethane.
- [c63] The method of claim 62, wherein the monofilament strands are polyurethane.
- [c64] The method of claim 52, wherein the inner tube is a semi-rigid thermoplastic material.
- [c65] The method of claim 64, wherein the semi-rigid thermoplastic material is polyethylene. .
- [c66] The method of claim 64, wherein the semi-rigid thermoplastic material is nylon.

- [c67] The method of claim 52, wherein the inner tube is an elastomeric material.
- [c68] The method of claim 52, wherein the diameter of the monofilament strands is greater than the spacing between the monofilament strands.
- [c69] The method of claim 52, wherein the spacing between the monofilament strands ranges from 50–200% of the diameter of the monofilament strands.
- [c70] The method of claim 52, wherein the fiber diameter is in the range of 0.20 to 0.80 inches.
- [c71] The method of claim 52, wherein the cover layer is an elastomeric material.
- [c72] The method of claim 71, wherein the cover layer is selected from the group consisting of polyurethane, a thermoplastic rubber, rubber, and silicone.
- [c73] A hose comprising:
 - an inner tube formed of a synthetic resin;
 - a non-reinforcing, abrasion-resistant layer of monofilament strands overlying the inner tube, wherein the monofilament strand diameter is in the range of 0.20 to 0.80 inches; and
 - a cover layer formed of a synthetic resin overlying the

inner tube and encapsulating the abrasion-resistant layer.

- [c74] The hose of claim 73 wherein monofilament strands are arranged in a regular pattern in the abrasion-resistant layer.
- [c75] The hose of claim 74 wherein the spacing between the monofilament strands ranges from 50–200% of the diameter of the monofilament strands.
- [c76] The hose of claim 75 wherein the monofilament strands are nylon.
- [c77] A hose comprising:
 - an inner tube formed of a synthetic resin;
 - a non-reinforcing, abrasion-resistant layer of monofilament strands overlying the inner tube, wherein monofilament strands are arranged in a regular pattern in the abrasion-resistant layer and wherein the spacing between the monofilament strands ranges from 50–200% of the diameter of the monofilament strands; and
 - a cover layer formed of a synthetic resin overlying the inner tube and encapsulating the abrasion-resistant layer.
- [c78] The hose of claim 77 wherein the monofilament strands are nylon.

